

# **Impact of Rain on QuikSCAT**

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## **Abstract:**

It is well known that QuikSCAT data is sensitive to rain contamination. This sensitivity is due to the Ku-band transmit frequency and the large incidence angle (46 and 54 degrees) at which the backscatter measurements are obtained. By co-locating QuikSCAT backscatter measurements, National Center for Environmental Predictions (NCEP) numerical wind products, and SSM/I rain rates, we attempt to quantify the effect of rain on QuikSCAT backscatter measurements and retrieved winds. Since, azimuthal modulation is crucial for retrieving wind direction, we examine not only the overall rain-induced change in backscatter but also the corresponding reduction in azimuthal modulation. We develop a simple model of backscatter and attenuation due to rain. Using this model, we estimate the speed and directional errors resulting from rain contamination as a function of rain rate, wind speed, and swath position.